

DISCUSSION OF THE CLAIMS

Claims 93-134 are pending in the present application. Claims 1-92 are canceled claims. Claims 123-134 are new claims. Support for new Claim 123 and 128 is found in the paragraph bridging pages 3 and 4. Support for new Claims 124 and 129 is found in Example Ib on page 22. Support for new Claim 125 and 130 is found in the paragraph bridging pages 20 and 21. This paragraph discloses that synthetic carrier oils based on olefin polymers (e.g., polyolefin polymers) are *optional* components that may be present in the claimed invention. Because this component is an optional one, Applicants submit that the original specification describes embodiments in which the polyolefin polymers are excluded in the manner now recited in Claims 125 and 130. Support for new Claims 126 and 131 is found in the previously presented claims and on pages 7-8 of the specification. Support for new Claims 127 and 132 is found in the previously presented claims and on page 14, lines 26-34. Support for new Claims 133 and 134 is found in the original claims, the previously presented claims and on page 15, lines 40-42. The previously presented claims are amended for matters of form to address the Office's comments in paragraph no. 5 on page 4 of the November 12, 2010 Office Action.

No new matter is believed to have been added by this amendment.

REMARKS

Applicants thank the Office for indicating that Claims 97 and 98 are not rejected over prior art. Applicants further thank the Office for acknowledging that the prior art of record “fails to teach or suggest fractionating the reaction mixture”. In this respect Applicants draw the Office’s attention to new Claims 127 and 132 which include a step of “fractionating” the reaction mixture formed in step (b) of Claims 93 and 111, respectively. Applicants request the Office acknowledge the patentability of new dependent Claims 127 and 132 over the prior art of record.

Applicants argued in the Response filed in the present case on July 30, 2010 that the combination of Worrel (U.S. 3,948,619), Cherpeck (U.S. 5,300,701), and Baxter (U.S. 6,562,913) is insufficient basis from which to set forth a *prima facie* case of obviousness. In particular Applicants pointed out that the rejection of the claims was based on impermissible hindsight reconstruction of the claimed invention. The Office nonetheless maintained the rejection in the November 12, 2010 Office Action and appeared to give Applicants’ arguments little weight in determining patentability. Applicants maintain that the rejection of the claims over Worrel, Cherpeck, and Baxter remains improper for the same reasons and incorporate by reference herein Applicants’ July 30, 2010 arguments in this regard.

Notwithstanding the Office’s maintenance of the rejection, Applicants submit that the characterization of the cited art in the November 12, 2010 Office Action is further proof of the impropriety of the rejection. The present independent claims recite a highly reactive polyisobutene having a polydispersability of less than 3.0. Applicants submit that at least this feature, among others, is not described in the cited art in a manner to constitute a *prima facie* case of obviousness.

The Office concedes that the primary reference, Worrel, fails to disclose the polydispersability of the claimed invention (see the last full paragraph on page 5 of the

November 12, 2010 Office Action). The Office appears to take the position that the Cherpeck and Baxter references cure this deficiency of the primary reference. The Office notes that Cherpeck describes the use of polyisobutene compounds having the commercial identifier "ULTRAVIS-10" (see the first sentence on page 6 of the November 12, 2010 Office Action) and that the Baxter reference proves that ULTRAVIS materials have a certain polydispersity. Cherpeck is silent with respect to the polydispersability properties of any polyisobutene material. Cherpeck's silence makes it clear that the combination of Worrel and Cherpeck is an insufficient basis to set forth a *prima facie* case of obviousness.

Applicants submit the Office's characterization of the Baxter disclosure is not correct. In fact, Baxter nowhere discloses the polydispersability characteristics of an ULTRAVIS polyisobutene. At best Baxter describes a generic polyisobutene having a polydispersability of 2.0 or less. This disclosure does not, however, cure the defects of the Worrel and Cherpeck references with respect to disclosure of the particular highly reactive polyisobutene of the present claims.

Further, the Office identifies no nexus between Baxter's disclosure and the Worrel and Cherpeck disclosures. The Office does little more than state that because Baxter describes a highly reactive polyisobutene having a polydispersability of no more than 2.0, the Cherpeck ULTRAVIS commercial product must have the same polydispersability. As noted above Baxter does not explicitly describe any ULTRAVIS product. The Office's reliance on Baxter as evidence that the ULTRAVIS products of Cherpeck have the polydispersability characteristics recited in the present claims is not supportable because there is no evidence of record that the ULTRAVIS-10 and ULTRAVIS-30 products described in Cherpeck do, in fact, have a polydispersability of 3.0 or less.

Applicants submit that the rejection of the claims in view of Worrel in combination with Cherpeck and Baxter is not supportable on factual grounds and the rejection should be withdrawn.

Further with respect to the polydispersability properties of the highly reactive polyisobutene, Applicants draw the Office's attention to new dependent Claims 133 and 134 which recite a polydispersability of 2.5 to less 3.0. Applicants submit that new dependent Claims 133-134 are further patentable over the cited art because they recite a polydispersability value that is excluded by the art relied on by the Office. Applicants thus respectfully request an indication of allowable subject matter for new Claims 133-134.

The rejection in view of the cited art is further unsupportable in view of the Office's erroneous interpretation of the Worrel disclosure. In the paragraph bridging pages 4 and 5 of the November 12, 2010 Office Action the Office characterizes the group R₁ of the Worrel Mannich adduct as having a molecular weight of from about 400 to 1,500. Applicants submit that the olefin reactant described at column 5, lines 24-36 of Worrel is different from the highly reactive polyisobutene of Claims 109, 124 and 129. Each of the aforementioned claims recite a highly reactive polyisobutene having a number average molecular weight that is outside the average molecular weight of the olefin reactants described in Worrel.

Worrel makes it clear that the "olefin reactant" may be an ordinary olefin or a polyolefin. If the olefin reactant is a polyolefin such as a polypropylene or polybutene the average molecular weight is "from about 900-1,100" (see column 5, lines 31-36 of Worrel). Worrel does not describe a polyisobutene having a molecular weight of less than 900. The molecular weight range of 400-1500 relates to the "olefin reactant" which may include a generic polymerized C₂-C₁₀ olefin. The particular polybutene (note that Worrel uses the generic "polybutene" whereas the present claims recite an "polyisobutene") has a molecular weight range that is different from the generic "olefin reactant".

Applicants thus respectfully request an indication of allowable subject matter for Claims 109, 124 and 129.

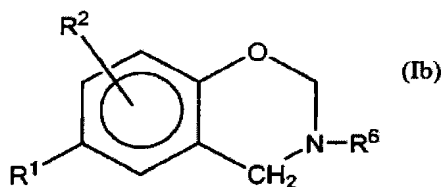
New Claims 123 and 128 describe a polyisobutene having a polymer backbone uniformity defined by at least 95 wt.% of isobutene units. The art of record is silent with respect to the particular uniformity characteristics described in new Claims 123 and 128. Applicants respectfully request allowance of the new dependent claims in view of the cited arts' silence with respect to this feature of the claimed invention.

New dependent Claims 125 and 130 are likewise further distinguished from Worrel. The new dependent claims exclude processes in which a polyolefin polymer is present in a gasoline fuel obtained by mixing Mannich adduct of the claimed invention with a gasoline. New dependent Claims 125 and 130 are different from the process and/or products described in Worrel which are required to include a polyolefin material (see the Abstract and claims of Worrel). New dependent Claims 125 and 130 are therefore further distinguished from the cited art.

In the November 12, 2010 Office Action, the Office maintained the rejection of Claims 95-96, 99-102, 111, 113, and 115-116. The Office acknowledges that the adduct mixtures of these claims are not described in Worrel but nonetheless would have been obvious at the time the present invention was made. Applicants traverse the rejection. In fact, the particular bicyclic structures, e.g., adduct mixtures containing a compound of formula (Ib), are nowhere suggested or disclosed in the cited art. The Office, on the one hand, acknowledges that the cited art is silent with respect to such adduct mixtures but on the other hand asserts that such adduct mixtures would be obvious.

Applicants submit the rejection is legally improper for the reason that there is no evidence of record proving that the particular bicyclic adducts described in the claims would

in fact inherently form in any prior art process or that such structures are obvious in view of any prior art adduct structures. Formula (Ib) is reproduced below.



The Office offers no explanation how this product can arise from the reactions described in any of the Worrel, Cherpeck or Baxter patents. Applicants submit that the rejection of the aforementioned claims should be withdrawn because the art of record fails to disclose or suggest this feature of the presently pending claims.

Applicants draw the Office's attention to new dependent Claims 126 and 131 which require that the amine described in Claims 93 and 111 is a "monoamine". The monoamine of Claim 111 is a **primary** monoamine that must be different from the amine described in Worrel as:

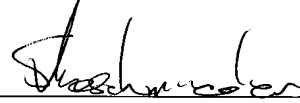


The only instance where Worrel describes a primary amine is in the compound described by formula at about line 15 in column 6. However, this primary amine is not a monoamine and thus subject matter of new Claims 126 and 131 should be further allowed over the art of record.

For the reasons discussed above in detail, Applicants request withdrawal of the rejection and the allowance of all now-pending claims.

Respectfully submitted,

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